

REMARKS

The drawings have been amended, as suggested by the Examiner. No new matter has been added.

The Examiner objected to claims 1, 8, 15, 20, 22, 31, 38, 41, and 42. The Examiner objected to claims 21, 28-30, 30, 43, and 44. The referenced claims have been amended as indicated to correct informalities.

The Examiner indicated that claims 2-5, 9-12, 21, 28, 32-35, 39, 40, 43, and 44 would be allowable if rewritten in independent form.

Claim 2 has been rewritten as new claim 45.

Claim 3 has been rewritten as new claim 46.

Claim 4 has been rewritten as new claim 47.

Claim 5 has been rewritten as new claim 48.

Claim 9 has been rewritten as new claim 49.

Claim 10 has been rewritten as new claim 50.

Claim 11 has been rewritten as new claim 51.

Claim 12 has been rewritten as new claim 52.

Claim 32 has been rewritten as new claim 53.

Claim 33 has been rewritten as new claim 54.

Claim 34 has been rewritten as new claim 55.

Claim 35 has been rewritten as new claim 56.

Claim 39 has been rewritten as new claim 57.

Claim 40 has been rewritten as new claim 58.

Claim 43 has been rewritten as new claim 59.

Claim 44 has been rewritten as new claim 60.

The Examiner rejected claims 1, 6-8, 13, 14, 31, 36-38, 41, and 42 under 35 U.S.C. 102(e) as being anticipated by Medin, U.S. Patent No. 6,130,723.

Medin discloses a method for reducing flicker within an interlaced image by identifying an area of the interlaced image where flicker needs to be reduced and adaptively

adjusting a pattern of pixels derived from a non-interlaced spacial relationship of the interlaced image within the area based upon characteristics of the image. A flicker filter uses an adaptive technique whereby pixel-blending characteristic are constantly changed within the image depending on particular image attributes. See, Medin, Abstract. The flicker reduction filter operates on a vertical filter principal just like the standard 2-line or 3-line flicker filters. The filter is adaptive in that constant changes occur in the filter weighting coefficients, depending on image luminance characteristics measured in the immediate area being processed by the filter. In addition, different filter characteristics are applied to the luminance and chrominance characteristics of the image. See, Medin, column 5, lines 4-16. Principally, Medin discloses a technique for adjusting the filtering of a pixel by applying a filter with different filter weighting coefficients based upon luminance characteristics measured in the immediate area.

Claim 1 has been amended to more clearly patentably distinguish over Medin by claiming reducing a flicker energy of the adjustment pixel to an energy at least equal to a predetermined threshold flicker energy.

Medin discloses applying an adaptive filter but provides no teaching to what the magnitude of the flicker energy is for a particular image. Without any quantification of the magnitude of the flicker energy, Medin similarly provides no teaching as to how to adapt the filter to reduce the flicker energy below a predetermined threshold. In contrast, Medin merely applies a filter to the pixels with no quantification of the result nor expectation of the resulting effect.

Claims 2-5 depend from claim 1, either directly or indirectly, and are patentable for the same reasons asserted for claim 1.

Claim 6 has been amended to more clearly patentably distinguish over Medin by claiming reducing a flicker contrast of the adjustment pixel to an energy at least equal to a predetermined threshold flicker contrast.

Medin discloses applying an adaptive filter but provides no teaching to what the magnitude of the flicker energy is for a particular image nor any measure of flicker contrast. Without any quantification of the magnitude of the flicker contrast, Medin similarly provides no

teaching as to how to adapt the filter to reduce the flicker contrast below a predetermined threshold. In contrast, Medin merely applies a filter to the pixels with no quantification of the result nor expectation of the resulting effect.

Claims 7-14 depend from claim 6, either directly or indirectly, and are patentable for the same reasons asserted for claim 6.

Claim 31 has been amended to include a logarithmic based function to patentably distinguish over Medin.

Claims 32-37 depend from claim 31, either directly or indirectly, and are patentable for the same reasons asserted for claim 31.

Claim 38 has been amended to include a logarithmic based function to patentably distinguish over Medin.

Claims 39-40 depend from claim 38 and are patentable for the same reasons asserted for claim 38.

Claim 41 patentably distinguishes over Medin by claiming reducing flicker by applying a filter being adjusted, at least in part, on the basis of a function of intensity transitions vertically displaced from the adjustment pixel.

Medin discloses applying an adaptive filter by varying the weighting applied to the pixels in some manner. However, Medin does not teach varying the weighting as a function of intensity transitions.

Claim 42 patentably distinguishes over Medin by claiming reducing flicker by applying a filter being adjusted, at least in part, on the basis of a function of a length of an approximately horizontal plurality of pixels of approximately equal intensity including the adjustment pixel.

Medin discloses adjusting flicker filter coefficients based on image feature width and average brightness. See, Medin, column 6, lines 32-35. Medin fails to suggest that the pixels are of approximately equal intensity. Further, Medin teaches away from suggesting that the pixels are of approximately equal intensity by suggesting the determination of an average brightness, thus implying the pixels are not approximately equal intensity.

Claims 43 and 44 depend from claim 42, either directly or indirectly, and are patentable for the same reasons asserted for claim 42.

The Examiner is respectfully requested to reconsider the claims and to pass the application to issue.

Respectfully submitted,



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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail postage prepaid in an envelope addressed to: Box Patent Application, Commissioner for Patents, Washington, D.C. 20231 on February 5, 2003.

Dated: February 5, 2003



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APPENDIX

1 (Amended). A method of reducing flicker from a display presenting an interlaced image comprising the step of filtering an adjustment pixel to reduce a flicker energy of said adjustment pixel to an energy at least equal to a predetermined threshold flicker energy.

8 (Amended). A method of reducing flicker from a display presenting an interlaced image comprising filtering a signal for an adjustment pixel to reduce a flicker contrast of said adjustment pixel to a contrast at least equal to a predetermined threshold flicker contrast.

15 (Amended). A method of reducing flicker from a display presenting an interlaced image comprising the steps of:

- (a) identifying an adjustment pixel in a plurality of pixels of approximately equal intensity and arrayed for approximately horizontal presentation on said display, said adjustment pixel having an intensity different from a background pixel vertically displaced from said adjustment pixel;
- (b) computing a flicker energy of said adjustment pixel; and
- (c) selecting a filter to reduce said flicker energy of said adjustment pixel to an energy less than a threshold flicker energy for said adjustment pixel.

20 (Amended). The method of claim 15 wherein said threshold flicker [contrast] energy is adjustable by a user of said display.

21 (Amended). The method of claim 15 further comprising the step of adjusting said filter for [filtering of] said adjustment pixel in response to filtering applied to an earlier filtered adjustment pixel.

22 (Amended). A method of reducing flicker of a display presenting an interlaced image comprising the steps of:

- (a) identifying an adjustment pixel in a plurality of pixels of approximately equal intensity and arrayed for approximately horizontal presentation on said display, said adjustment pixel having an intensity different from an intensity of a background pixel vertically displaced from said adjustment pixel;
- (b) computing a flicker contrast of said adjustment pixel; and
- (c) selecting a filter to reduce said flicker contrast of said adjustment pixel to a contrast less than a threshold flicker contrast for said adjustment pixel.

28 (Amended). The method of claim 22 further comprising the step of adjusting said filter for [filtering of] said adjustment pixel in response to filtering applied to an earlier filtered adjustment pixel.

29 (Amended). A method of reducing flickering of a horizontal intensity discontinuity on a display presenting an interlaced image comprising:

- (a) computing a flicker energy for an adjustment pixel said flicker energy [level] being a function of a ratio of an intensity of said adjustment pixel and an intensity of a background pixel vertically adjacent to said adjustment pixel, a number of horizontal intensity discontinuities in a vertical vicinity of said adjustment pixel, and a length of said horizontal intensity discontinuity;
- (b) comparing said flicker energy level to a threshold flicker energy; and
- (c) filtering a signal for said adjustment pixel to reduce said flicker energy to an energy at least equal to said threshold flicker energy.

30 (Amended). A method of reducing flickering of a horizontal intensity discontinuity on a display presenting an interlaced image comprising:

- (a) computing a flicker contrast for an adjustment pixel said flicker contrast [level] being a function of a ratio of the difference of an intensity of said adjustment pixel and an intensity of a background pixel vertically displaced from said adjustment pixel and a sum of said intensities, a number of horizontal intensity discontinuities in a vertical vicinity of said adjustment pixel, and a length of said horizontal intensity discontinuity;
- (b) comparing said flicker contrast to a threshold flicker contrast; and
- (c) filtering a signal for said adjustment pixel to reduce said flicker contrast to a contrast at least equal to said threshold flicker contrast.

31 (Amended). A method of reducing flicker on a display presenting an interlaced image comprising the steps of:

- (a) selecting an adjustment pixel of said image; and
- (b) applying a filter to at least said adjustment pixel, said filter being adjusted, at least in part, on the basis of at least one of:
 - (i) a logarithmic based function of an intensity of said adjustment pixel and an intensity of another pixel vertically displaced from said adjustment pixel;
 - (ii) a function of a number of intensity transitions vertically displaced from said adjustment pixel; and
 - (iii) a function of a length of an approximately horizontal plurality of pixels of approximately equal intensity including said adjustment pixel.

38 (Amended). A method of reducing flicker on a display presenting an interlaced image comprising the steps of:

- (a) selecting an adjustment pixel of said image; and
- (b) applying a filter to at least said adjustment pixel, said filter being adjusted, at least in part, on the basis of a logarithmic based function of an intensity of said adjustment pixel and an intensity of another pixel vertically displaced from said adjustment pixel.

40 (Amended). The method of claim 38 wherein said function of said intensities of said adjustment pixel and said [background] another pixel is a ratio of the difference and the sum of said intensities.

41 (Amended). A method of reducing flicker on a display presenting an interlaced image comprising the steps of:

- (a) selecting an adjustment pixel of said image; and
- (b) applying a filter to at least said adjustment pixel, said filter being adjusted, at least in part, on the basis of function of [a number of] intensity transitions vertically displaced from said adjustment pixel.

42 (Amended). A method of reducing flicker on a display presenting an interlaced image comprising the steps of:

- (a) selecting an adjustment pixel of said image; and
- (b) applying a filter to at least said adjustment pixel, said filter being adjusted, at least in part, on the basis of a function of a length of an approximately horizontal plurality of pixels of approximately equal intensity including said adjustment pixel.

43 (Amended). The method of claim [41] 42 wherein said function of said length of said approximately horizontal plurality of pixels comprises a ratio of a number of said pixels included in said plurality and said number of said pixels plus a constant.

44 (Amended). The method of claim 43 wherein said constant has a first value if an intensity of said adjustment pixel is greater than an intensity of another pixel vertically [adjacent to] displaced relative to said adjustment pixel and a second value if said intensity of said adjustment pixel is less than said intensity of said another pixel.